Distr.
LIMITED

ID/WG.62/37
24 September 1970

ORIGINAL: ENGLISH

United Nations Industrial Development Organization

Symposium on Maintenance and Repair in Developing Countries

Duisburg, Federal Republic of Germany, 10 - 17 November 1970

ISSUE PAPER

SESSION V

ITEM 9 ON THE PROVISIONAL ANNOTATED AGENDA

NATIONAL ACTION AND INTERNATIONAL CO-OPERATION IN IMPROVING MAINTENANCE AND REPAIR FACILITIES IN DEVELOPING COUNTRIES [1]

prepared by

the secretariat of UNIDO

Organized in co-operation with the German Foundation for Developing Countries and the Association of German Machinery Manufacturers (VDMA)

1/ This document has been reproduced without formal editing.

While the principal responsibility for initiating and establishing adequate maintenance and repair facilities in developing countries should be the concern of these countries themselves, international co-operation has acquired increasing significance in this area. In this context, two major considerations should be taken into account:

a) The bulk of production equipment in developing countries is supplied and will continue to be supplied in the foreseeable future from industrialized countries. As suppliers, these countries take upon themselves certain responsibilities as regards repair and maintenance of such equipment, and thus have an important role to play in this field.

b) In the promotion of their industrial activities (including maintenance and repair) developing countries depend and will continue to depend for some time to come to a great extent on bilateral assistance from industrialized countries and multi-lateral and international co-operation with international bodies and United Nations agencies.

Given this inter-relationship of factors and the involvement of the various bodies - industrial enterprises, national and international organizations - the contribution each of these bodies can and perhaps ought to make towards improving repair and maintenance facilities in developing countries, should be closely examined. This is rather a complex subject which the Symposium may wish to discuss fully so as to put forward practical conclusions and recommendations which would enable the developing countries to derive the full benefit which bilateral and international co-operation offers in this field.

The following information and remarks may contribute to the discussions:

A) Duties and Obligations of Supplying Firms:

Before the Expert Group Meeting on Maintenance and Repair of Industrial Equipment in Developing Countries, which took place in New York from 28 November to 9 December 1966, a questionnaire was sent to many developing countries intended to obtain information on maintenance and repair activities in these countries and to assess their requirements. This was followed in 1969 by a survey of maintenance and repair facilities in 12 countries.

The terms of reference given to the experts who surveyed the 12 countries included the task of finding out "whether the services rendered by manufacturers of imported industrial equipment are satisfactory". The query had also been dealt with in one of the questionnaires. Seventy percent of the answers indicated that such services are not satisfactory. Analysis of the replies received indicated that many firms rendered reasonable service during installation and start of equipment; fewer firms gave satisfactory service during guarantee periods; and very few continued to be interested in rendering reasonable service after the guarantee period expired. Again, most assistance received from manufacturers aimed at attaining guaranteed production figures or to proving that the equipment is capable of giving the performance stipulated in the contract. Comparatively little assistance was directed towards maintenance and repair. It is well known that it is much easier to start a plant than to keep it operating economically and efficiently. The attitude of the manufacturers seems to have been that "we have delivered the equipment which is capable of producing what you want, it is up to you to keep the equipment in a condition which will allow it to continue giving such performance".

Complaints related particularly to the following aspects:

a) Operating and Maintenance Manuals and Other Technical Documents: Their availability is usually very limited and, if available, in the original language only. The text is prepared for customers in advanced countries. Such manuals are usually not suitable for the level of education, skill and experience of nationals in developing countries. An effort should be made by suppliers of machinery to make specially prepared technical documents available to developing countries in the local language.

b) Training and Personnel: This is inadequate and practically concentrated at the labour level. Shortage and skilled personnel, particularly at the management level, is a major bottle-neck in maintenance activities. Suppliers of machinery cannot usually accommodate a sufficient number of personnel for training on their premises.

c) Local Agencies: Local agencies are, as a rule, not properly equipped and do not have competent personnel to look after maintenance problems. It is generally agreed that better service is usually obtained from suppliers or their local office, if the latter is a part of the supplier organization, than from local agencies.

d) Assistance after Guarantee Periods: Apart from large reputable firms, most suppliers lose interest after the guarantee period expires.

Experience indicates that such complaints are justified; however, whether these shortcomings are entirely the responsibility of supplying firms is debatable. This point will be amplified in the next chapter.

B) Role of Governments of Industrialized Countries:

Donations, long-term loans and technical assistance are being given by many industrialized countries to developing nations. While it is outside the scope of this Symposium to discuss whether the magnitude of the help is satisfactory, the meeting offers an opportunity to discuss whether the assistance given could be directed towards specific areas, e.g. repair and maintenance, where it could be more effective to promoting industrial development.

a) Obligations of supplying firms: These have been reviewed in the previous chapter. The needs as outlined are justified, but meeting these needs is costly. Most supplying firms appear to be willing to cope with these needs if reimbursed for the additional expense. These firms cannot be expected to bear the entire cost and thus reduce their margin of profit which is, in many instances, relatively small because of the tendering system adopted by most developing countries. On the other hand, many developing countries either are not willing to pay for these services or are unable to do so.

Governments of industrialized countries can help in resolving this impasse. Part of their assistance intended for the purchase of equipment from their respective countries, could be allocated, instead, to the financing of the following undertakings, either supported entirely by the governments or in cooperation with the suppliers:

1) the preparation of suitable technical manuals, etc., based on the abovementioned studies and preferably in the local language;

2) a thorough study of local conditions and the initiation of suitable maintenance techniques;

3) financial assistance in the training of a larger number of personnel on the premises of the supplying firms or other technical and training institutions;

4) supplying developing countries with a larger number of personnel during and after the guarantee period; until the ability of developing countries to maintain new equipment has reached a satisfactory standard.

Such steps would benefit both developing and industrialized countries. The industrialized countries have certainly an interest in seeing to it that equipment supplied by their firms give satisfactory service and are well maintained. This enhances the reputation of their equipment and also their foreign trade.

b) Help in establishing technical and design centres: Maintenance prevention, through change and adaptation of design to suit local working conditions is a considerable factor in meeting maintenance problems in developing countries. Establishing design and technical centres is a major step in this respect. The information and experience gained from the operation of such centres would be beneficial both to the developing and industrialized countries. The firms in industrialized countries would gain experience and know-how, to modify their products, wherever possible, to local conditions.

Although the responsibility for establishing such centres lies mainly within the developing countries themselves, most of them require financial and technical assistance which could form part of the assistance industrialized countries extend to developing countries.

c) In-plant training programmes in maintenance and repair: As indicated by answers received from developing countries, one of the major obstacles to establishing adequate maintenance and repair facilities is lack of the adequate number of

qualified experienced personnel in this field. The training of such personnel is a heavy load on the developing countries. Part of the technical assistance allocation could be directed towards establishing in-plant training programmes in advanced countries, perhaps on a regional basis. Many industrialized countries have already sponsored such courses and it is hoped that other industrialized countries will follow suit.

C) Role of Developing Countries:

The primary responsibility for establishing adequate maintenance and repair facilities lies within the developing countries themselves. The assistance received from industrialized countries and international agencies would be of little value unless the developing countries themselves establish their own programmes of action and regard outside assistance as only a help in implementing such programmes. At the same time the developing countries must also build up their indigenous capacity to absorb such help as is extended to them.

The role of developing countries comes under two main categories, that of government and that of enterprises:

a) Role of Government. One of the main reasons for lack of adequate maintenance and repair facilities in developing countries is the lack of understanding and appreciation of the essential role these facilities play in the industrialization process. The building up of an adequate background and consciousness in this area is of utmost importance. In most developing countries government guidance and support to create and maintain a proper awareness is essential. To this end, governments should initiate some of the following:

1) Maintenance should be part of the general planning of industrial development.
2) The establishment of design centres and technical offices at the country level and

the enterprise level should be encouraged. Particularly at early stages of industrial development, the government should establish such central design centres; and, later, for each sector. Financial and technical assistance should also be given to enterprises in establishing their own technical offices.

3) The Government should provide financial, fiscal, and other incentives to induce industry to establish adequate maintenance and repair facilities, rational maintenance policies and adequate training facilities.

4) Since lack of spare parts is a major problem in most developing countries, the Government should formulate a rational import policy for spare parts. Additional measures would include the introduction of efficient custom clearing procedures and the establishment of duty-free zones to ease the financial burden on enterprises.

5) Arrangements for assisting enterprises to obtain and dissemenate information on maintenance and repair, including the establishment of technical libraries and information centres, the holding of seminars, etc.

6) The establishment of spare parts manufacturing centres. In ad ition to reducing the drain on foreign exchange, such centres would, in the long run, add materially to the country's ability to promote industrial development. The operation of such centres would contribute to the creation of a pool of skills and experience which could serve other ancillary industries.

b) Role of Industry and Industrial Enterprises: Industry and industrial enterprises have a primary role to play in establishing maintenance and repair facilities. Foreign suppliers, governments of industrialized countries, and local governments, may help in varying degrees, but the principal task lies within industry itself.

It is its duty to safeguard this valuable capital asset and to ensure that these facilities will contribute to industrial development. Industry should recognize efficient maintenance as an important industrial function, train maintenance personnel, encourage know-how, and provide the proper tools and spare parts.

c) Role of UNIDO: What UNIDO is doing and can do is explained in the background paper "UNIDO's Campaign in Improving Maintenance and Repair in Developing Countries". However, the ultimate aim of UNIDO's activities is to assist developing countries to overcome their difficulties and to develop their facilities to meet their requirements in the field of repair and maintenance.

The Symposium offers perhaps a unique opportunity for the developing countries to express their problems, needs and aspirations; and for UNIDO to examine these requirements and determine the extent to which it can assist in resolving these issues.